

# PATENT COOPERATION TREATY

## PCT


### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 15 JUN 2005

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Applicant's or agent's file reference PN0335-PCT		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA/416
International application No. PCT/NO2004/000107		International filing date (day/month/year) 15.04.2004		Priority date (day/month/year) 15.04.2003
International Patent Classification (IPC) or national classification and IPC G01R33/28				
Applicant AMERSHAM HEALTH AS et al.				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  21.01.2005		Date of completion of this report  16.06.2005		
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer  Telephone No. +31 70 340-  Volmer, W		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NO2004/000107

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-11 as originally filed

**Claims, Numbers**

1-18 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
- \* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/NO2004/000107

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	
	No: Claims	1-4, 10, 11, 13, 14, 16, 17
Inventive step (IS)	Yes: Claims	
	No: Claims	1-4, 10, 11, 13, 14, 16, 17
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/NO2004/000107

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: US 5 599 522 A

D2: D.A. Hall et al.: "Polarization-Enhanced NMR Spectroscopy of Biomolecules in Frozen Solution", Science **276** (1997), 930 - 932.

The present application does not satisfy the criterion set forth in Article 33(2) PCT because the subject-matter of claims 1 - 4, 10, 11, 13, 14, 16 and 17 is not new in respect of the prior art as defined in the regulations [Rule 64(1) - (3) PCT]:

Document D1 discloses [cf. the passages cited in the search report]:

- a radical for use in a DNP process of a sample, which radical
    - is generated in situ [the site of preparation] from a radical precursor
- [cf. D1: col. 11, lines 1 - 6]

at decomposes to a non-radical species at temperatures from about 5 K to about 273 K

[it is known that organic compounds are stable in about the above temperature range, hence also the D1-species decompose into a non-radical species at about the above specified temperature range].

Hence, the subject-matter of claim 1 is not new.

The above arguments also apply to the subject-matter of claims 2 and 3 and of claims 13 and 14. Therefore, also the subject-matter of claims 2, 3, 13 and 14 is not new.

Moreover, D1 discloses a DNP process as specified in claim 13, wherein the mixture further comprises a solvent [cf. D1, col. 2, line 62 - col. 3, line 5: the solvent is the body fluid of the person into which the DNP radical has been injected]. Therefore, also the subject-matter of claim 17 is not new.

The above arguments also apply to the disclosure of document D2,  
[also in D2, the DNP-radical (TEMPO) is generated in situ (the site of generation) from a radical precursor; also TEMPO decomposes about the temperature range

specified in claim 1]  
and therefore the subject-matter of claims 1 - 3, 13 and 14 is not new with respect to the disclosure of D2.

Furthermore, D2 discloses the radical precursor being a photolabile organic compound and the radical being generated by photolysis [in D2, page 930: "photochemically induced DNP of photosynthetic reaction centers"]. Therefore, also the subject-matter of claim 4 is not new.

D2 also discloses that the radical precursor is a solvent [glycerol-water, cf. D2, page 930], and that the radical is prepared in situ [in the site of preparation] using high-energy microwave radiation. Therefore, also the subject-matter of claims 10 and 11 is not new.

Furthermore, D2 [page 930] discloses that the radical is generated by freezing a mixture comprising the [biological] sample and a solvent [glycerol] in liquid nitrogen and irradiating the frozen mixture with high-energy microwave radiation. Therefore, also the subject-matter of claim 16 is not new.